

Electrochemical Dehumidification and Life Support System, Phase I

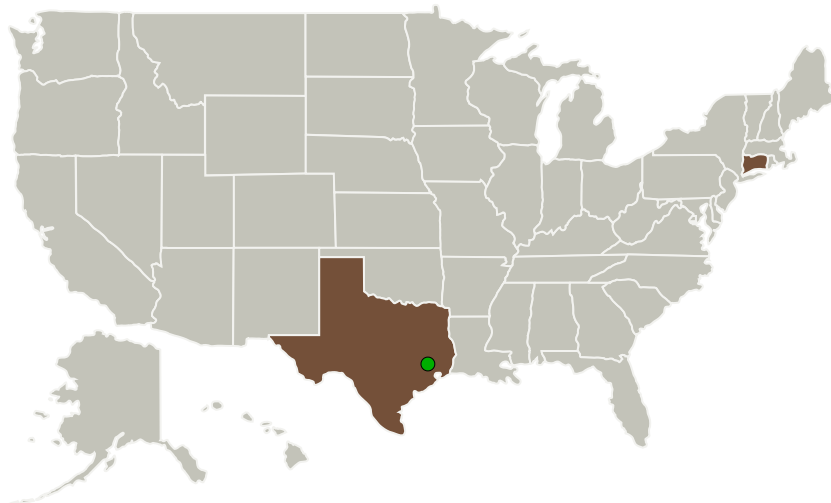
Completed Technology Project (2013 - 2013)



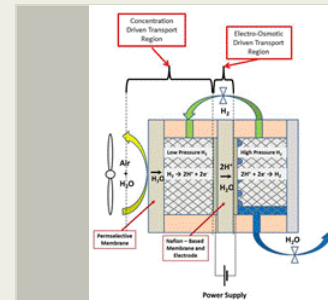
Project Introduction

Sustainable Innovations has developed an innovative concept for highly efficient, reliable, potable water production based on technology from a commercial line of hydrogen recovery and compression systems the company is developing. This Electrochemical Dehumidification and Life Support System (EDLS) system utilizes a small amount of hydrogen as a working fluid, operating in a sealed cavity, and leverages a hydrogen compression cycle to provide the driving force to both remove water from the local environment, passing it into a dry hydrogen stream, and condense pure, potable drinking water. The hydrogen compression cycle used in this process is highly efficient, approaching the efficiency of an ideal isothermal compression process, and can be achieved without moving parts. This technology could play a key role in critical NASA environmental control and life support applications.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
Skyre Inc	Lead Organization	Industry Small Disadvantaged Business (SDB)	
● Johnson Space Center(JSC)	Supporting Organization	NASA Center	Houston, Texas



Electrochemical Dehumidification and Life Support System

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Primary U.S. Work Locations

Connecticut

Texas

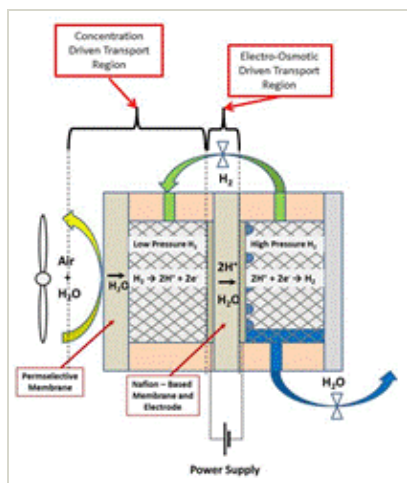
Project Transitions

**May 2013:** Project Start**November 2013:** Closed out

Closeout Documentation:

- Final Summary Chart(<https://techport.nasa.gov/file/138120>)

Images



Project Image

Electrochemical Dehumidification and Life Support System
(<https://techport.nasa.gov/image/135949>)

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Skyre Inc

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

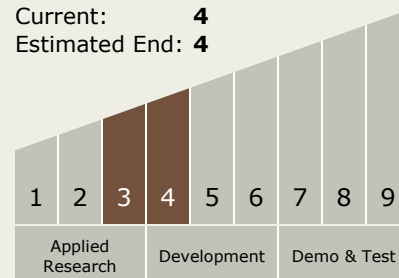
Joshua Preston

Technology Maturity (TRL)

Start: **3**

Current: **4**

Estimated End: **4**



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Technology Areas

Primary:

- TX06 Human Health, Life Support, and Habitation Systems
 - └ TX06.1 Environmental Control & Life Support Systems (ECLSS) and Habitation Systems
 - └ TX06.1.1 Atmosphere Revitalization

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System